

**§ 88.103–94 Abbreviations.**

The abbreviations of part 86 also apply to this subpart. The abbreviations in this section apply to all of part 88.

ALVW—Adjusted Loaded Vehicle Weight  
 CO—Carbon Monoxide  
 HCHO—Formaldehyde  
 HC—Hydrocarbon  
 HDV—Heavy-Duty Vehicle  
 LDT—Light-Duty Truck  
 LDV—Light-Duty Vehicle  
 NMHC—Non-Methane Hydrocarbon  
 NMHCE—Non-Methane Hydrocarbon Equivalent  
 NMOG—Non-Methane Organic Gas  
 NOx—Nitrogen Oxides  
 PM—Particulate Matter  
 GVWR—Gross Vehicle Weight Rating  
 LVW—Loaded Vehicle Weight  
 TW—Test Weight  
 TLEV—Transitional Low-Emission Vehicle  
 LEV—Low-Emission Vehicle  
 ULEV—Ultra Low-Emission Vehicle  
 ZEV—Zero-Emission Vehicle

[57 FR 60046, Dec. 17, 1992. Redesignated and amended at 59 FR 50074, Sept. 30, 1994]

**§ 88.104–94 Clean-fuel vehicle tailpipe emission standards for light-duty vehicles and light-duty trucks.**

(a) A light-duty vehicle or light-duty truck will be considered as a TLEV, LEV, ULEV, or ZEV if it meets the applicable requirements of this section.

(b) Light-duty vehicles certified to the exhaust emission standards for TLEVs, LEVs, and ULEVs in Tables A104-1 and A104-2 shall be considered as meeting the requirements of this section for that particular vehicle emission category for model years 1994–2000 for the California Pilot Program.

(c) Light-duty vehicles certified to the exhaust emission standards for LEVs and ULEVs in Tables A104-1 and A104-2 shall be considered as meeting the requirements of this section for that particular vehicle emission category for model years 2001 and later for the California Pilot Program, and for model years 1998 and later for the Clean Fuel Fleet Program.

(d) Light light-duty trucks certified to the exhaust emission standards for a specific weight category for TLEVs, LEVs, and ULEVs in Tables A104-3 and A104-4 shall be considered as meeting the requirements of this section for that particular vehicle emission category.

For model years 1994–2000 for the California Pilot Program.

(e) Light Light-duty trucks certified to the exhaust emission standards for a specific weight category for LEVs and ULEVs in Tables A104-3 and A104-4 shall be considered as meeting the requirements of this section for that particular vehicle emission category. For model years 2001 and later for the California Pilot Program, and for model years 1998 and later for the Clean Fuel Fleet Program.

(f) Heavy light-duty trucks certified to the exhaust emission standards for a specific weight category of LEVs and ULEVs in Tables A104-5 and A104-6 for model years 1998 and later shall be considered as meeting the requirements of this section for that particular vehicle emission category.

(g) A light-duty vehicle or light-duty truck shall be certified as a ZEV if it is determined by engineering analysis that the vehicle satisfies the following conditions:

(1) The vehicle fuel system(s) must not contain either carbon or nitrogen compounds (including air) which, when burned, form any of the pollutants listed in Table A104-1 as exhaust emissions.

(2) All primary and auxiliary equipment and engines must have no emissions of any of the pollutants listed in Table A104-1.

(3) The vehicle fuel system(s) and any auxiliary engine(s) must have no evaporative emissions in use.

(4) Any auxiliary heater must not operate at ambient temperatures above 40 degrees Fahrenheit.

(h) *NMOG standards for flexible- and dual-fueled vehicles when operating on clean alternative fuel—(1) Light-duty vehicles, and light light-duty trucks.* Flexible- and dual-fueled LDVs and light LDTs of 1996 model year and later shall meet all standards in Table A104-7 for vehicles of the applicable model year, loaded vehicle weight, and vehicle emission category.

(2) *Light-duty trucks above 6,000 lbs GVWR.* Flexible- and dual-fueled LDTs above 6,000 lbs. GVWR of 1998 model year and later shall meet all standards in Table A104-8 for vehicles of the applicable test weight and vehicle emission category.

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(i) *NMOG standards for flexible- and dual-fueled vehicles when operating on conventional fuel*—(1) *Light-duty vehicles, and light light-duty trucks.* Flexible- and dual-fueled LDVs and light LDTs of 1996 model year and later shall meet all standards in Table A104-9 for vehicles of the applicable model year, loaded vehicle weight, and vehicle emission category.

(2) *Light-duty trucks above 6,000 lbs GVWR.* Flexible- and dual-fueled LDTs of 1998 model year and later shall meet all standards in Table A104-10 for vehicles of the applicable test weight and vehicle emission category.

(j) *Other standards for flexible- and dual-fueled vehicles.* When operating on clean alternative fuel, flexible- and dual-fueled light-duty vehicles and light light-duty trucks must also meet the appropriate standards for carbon monoxide, oxides of nitrogen, formaldehyde, and particulate matter as designated in paragraphs (a) through (f) of this section as well as all other applicable standards and requirements. When operating on conventional fuel, flexible- and dual-fueled vehicles must also meet all other applicable standards and requirements in 40 CFR part 86.

(k) Motor vehicles subject to standards and requirements of this section shall also comply with all applicable standards and requirements of 40 CFR part 86, except that any exhaust emission standards in 40 CFR part 86 per-

taining to pollutants for which standards are established in this section shall not apply. For converted vehicles, the applicable standards and requirements of 40 CFR part 86 and this part 88 shall apply based on the model year in which the conversion is performed, regardless of the model year in which the base vehicle was originally manufactured prior to conversion.

(1) Gaseous-fueled, diesel-fueled, and electric clean-fuel vehicles are waived from cold CO test requirements of subpart C of this part if compliance is demonstrated by engineering analysis or test data.

(2) The standards in this section shall be administered and enforced in accordance with the California Regulatory Requirements Applicable to the Clean Fuel Fleet and California Pilot Programs, April 1, 1994, which are incorporated by reference.

(i) This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(ii) Copies may be inspected at U.S. EPA, OAR, 401 M Street, Southwest, Washington, DC 20460, or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC. Copies of these materials may be obtained from Barclay's Law Publishers, 400 Oyster Point Boulevard, P.O. Box 3066, South San Francisco, CA 94080, phone (415) 244-6611.

## TABLES TO § 88.104-94

TABLE A104-1—INTERMEDIATE USEFUL LIFE STANDARDS (G/Mi) FOR LIGHT-DUTY VEHICLES FOR HCs, CO, NO<sub>x</sub>, HCHO, AND PM

Vehicle emission category	NMOG	CO	NO <sub>x</sub>	HCHO	PM <sup>1</sup>
TLEV .....	0.125	3.4	0.4	0.015	.....
LEV .....	<sup>2</sup> 0.075	<sup>2</sup> 3.4	.2	<sup>2</sup> .015	.....
ULEV .....	.040	1.7	<sup>2</sup> .2	.008	.....

<sup>1</sup> Applies to diesel vehicles only.

<sup>2</sup> Applies to ILEVs.

TABLE A104-2—FULL USEFUL LIFE STANDARDS (G/Mi) FOR LIGHT-DUTY VEHICLES FOR HCs, CO, NO<sub>x</sub>, HCHO, AND PM

Vehicle emission category	NMOG	CO	NO <sub>x</sub>	HCHO	PM <sup>1</sup>
TLEV .....	0.156	4.2	0.6	0.018	0.08
LEV .....	<sup>2</sup> 0.090	<sup>2</sup> 4.2	.3	<sup>2</sup> .018	<sup>2</sup> .08
ULEV .....	.055	2.1	<sup>2</sup> .3	.011	.04

<sup>1</sup> Applies to diesel vehicles only.

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<sup>2</sup> Applies to ILEVs.

**TABLE A104–3—INTERMEDIATE USEFUL LIFE STANDARDS (G/MI) FOR LIGHT LIGHT-DUTY TRUCKS FOR HCS, CO, NO<sub>x</sub>, HCHO, AND PM**

LVW (lbs)	Vehicle emission category	NMOG	CO	NO <sub>x</sub>	HCHO	PM <sup>1</sup>
0–3750 .....	TLEV .....	.125	3.4	.4	.015	.....
	LEV .....	<sup>2</sup> .075	<sup>2</sup> 3.4	.2	<sup>2</sup> .015	.....
	ULEV .....	.040	1.7	<sup>2</sup> .2	.008	.....
3751–5750 .....	TLEV .....	0.160	4.4	.7	.018	.....
	LEV .....	<sup>2</sup> .100	<sup>2</sup> 4.4	.4	<sup>2</sup> .018	.....
	ULEV .....	.050	2.2	<sup>2</sup> .4	.009	.....

<sup>1</sup> Applies to diesel vehicles only.

<sup>2</sup> Applies to ILEVs.

**TABLE A104–4—FULL USEFUL LIFE STANDARDS (G/MI) FOR LIGHT LIGHT-DUTY TRUCKS FOR HCS, CO, NO<sub>x</sub>, HCHO, AND PM**

LVW (lbs)	Vehicle emission category	NMOG	CO	NO <sub>x</sub>	HCHO	PM <sup>1</sup>
0–3750 .....	TLEV .....	0.156	4.2	0.6	0.018	0.08
	LEV .....	<sup>2</sup> 0.090	<sup>2</sup> 4.2	0.3	<sup>2</sup> .018	<sup>2</sup> .08
	ULEV .....	.055	2.1	<sup>2</sup> .3	.011	.04
3751–5750 .....	TLEV .....	.200	5.5	.9	.023	.08
	LEV .....	<sup>2</sup> .130	<sup>2</sup> 5.5	.5	<sup>2</sup> .023	<sup>2</sup> .08
	ULEV .....	.070	2.8	<sup>2</sup> .5	.013	.04

<sup>1</sup> Applies to diesel vehicles only.

<sup>2</sup> Applies to ILEVs.

**TABLE A104–5—INTERMEDIATE USEFUL LIFE STANDARDS (G/MI) FOR HEAVY LIGHT-DUTY TRUCKS FOR HCS, CO, NO<sub>x</sub>, HCHO, AND PM**

ALVW (lbs)	Vehicle emission category	NMOG	CO	NO <sub>x</sub> <sup>2</sup>	HCHO	PM <sup>1</sup>
0–3750 .....	LEV .....	<sup>3</sup> 0.125	<sup>3</sup> 3.4	0.4	<sup>3</sup> 0.015	
	ULEV .....	.075	1.7	<sup>3</sup> .2	.008	
3751–5750 .....	LEV .....	<sup>3</sup> .160	<sup>3</sup> 4.4	.7	<sup>3</sup> .018	
	ULEV .....	.100	2.2	<sup>3</sup> .4	.009	
5751– .....	LEV .....	<sup>3</sup> .195	<sup>3</sup> 5.0	1.1	<sup>3</sup> .022	
	ULEV .....	.117	2.5	<sup>3</sup> .6	.011	

<sup>1</sup> Applies to diesel vehicles only.

<sup>2</sup> Does not apply to diesel vehicles.

<sup>3</sup> Applies to ILEVs.

**TABLE A104–6—FULL USEFUL LIFE STANDARDS (G/MI) FOR HEAVY LIGHT-DUTY TRUCKS FOR HCS, CO, NO<sub>x</sub>, HCHO, AND PM**

ALVW (lbs)	Vehicle emission category	NMOG	CO	NO <sub>x</sub>	HCHO	PM <sup>1</sup>
0–3750 .....	LEV .....	<sup>2</sup> 0.180	<sup>2</sup> 5.0	0.6	<sup>2</sup> 0.022	<sup>2</sup> 0.08
	ULEV .....	.107	2.5	<sup>2</sup> .3	.012	.04
3751–5750 .....	LEV .....	<sup>2</sup> .230	<sup>2</sup> 6.4	1.0	<sup>2</sup> .027	<sup>2</sup> .10
	ULEV .....	.143	3.2	<sup>2</sup> .5	.013	.05
5751– .....	LEV .....	<sup>2</sup> .280	<sup>2</sup> 7.3	1.5	<sup>2</sup> .032	<sup>2</sup> .12
	ULEV .....	.167	3.7	<sup>2</sup> .8	.016	.06

<sup>1</sup> Applies to diesel vehicles only.

<sup>2</sup> Applies to ILEVs.

**TABLE A104–7—NMOG STANDARDS (G/MI) FOR FLEXIBLE- AND DUAL-FUELED VEHICLES WHEN OPERATING ON CLEAN ALTERNATIVE FUEL FOR LIGHT LIGHT-DUTY TRUCKS AND LIGHT-DUTY VEHICLES**

Vehicle type	50,000 mile NMOG standard	100,000 mile NMOG standard
MY 1996 and later:		
LDTs (0–3,750 lbs. LVW) and LDVs .....	0.125	0.156
LDTs (3,751–5,750 lbs. LVW) .....	.160	.200
Beginning MY 2001:		
LDTs (0–3,750 lbs. LVW) and LDVs .....	.075	.090

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**TABLE A104–7—NMOG STANDARDS (G/MI) FOR FLEXIBLE- AND DUAL-FUELED VEHICLES WHEN OPERATING ON CLEAN ALTERNATIVE FUEL FOR LIGHT LIGHT-DUTY TRUCKS AND LIGHT-DUTY VEHICLES—Continued**

Vehicle type	50,000 mile NMOG standard	100,000 mile NMOG standard
LDTs (3,751–5,750 lbs. LVW) .....	.100	.130

**TABLE A104–8—NMOG STANDARDS (G/MI) FOR FLEXIBLE- AND DUAL-FUELED VEHICLES WHEN OPERATING ON CLEAN ALTERNATIVE FUEL FOR HEAVY LIGHT-DUTY TRUCKS**

Vehicle type	50,000 mile NMOG standard	120,000 mile NMOG standard
Beginning MY 1998:		
LDTs (0–3,750 lbs. ALVW) .....	0.125	0.180
LDTs (3,751–5,750 lbs. ALVW) .....	.160	.230
LDTs (5,751–8,500 lbs. ALVW) .....	.195	.280

**TABLE A104–9—NMOG STANDARDS (G/MI) FOR FLEXIBLE- AND DUAL-FUELED VEHICLES WHEN OPERATING ON CONVENTIONAL FUEL FOR LIGHT LIGHT-DUTY TRUCKS AND LIGHT-DUTY VEHICLES**

Vehicle type	50,000 mile NMOG standard	100,000 mile NMOG standard
Beginning MY 1996:		
LDTs (0–3,750 lbs. LVW) and LDVs .....	0.25	0.31
LDTs (3,751–5,750 lbs. LVW) .....	.32	.40
Beginning MY 2001:		
LDTs (0–3,750 lbs. LVW) and LDVs .....	.125	.156
LDTs (3,751–5,750 lbs. LVW) .....	.160	.200

**TABLE A104–10—NMOG STANDARDS (G/MI) FOR FLEXIBLE- AND DUAL-FUELED VEHICLES WHEN OPERATING ON CONVENTIONAL FUEL FOR LIGHT LIGHT-DUTY TRUCKS**

Vehicle type	50,000 mile NMOG standard	120,000 mile NMOG standard
Beginning MY 1998:		
LDTs (0–3,750 lbs. ALVW) .....	0.25	0.36
LDTs (3,751–5,750 lbs. ALVW) .....	.32	.46
LDTs (5,751–8,500 lbs. ALVW) .....	.39	.56

[59 FR 50074, Sept. 30, 1994, as amended at 61 FR 127, Jan. 3, 1996]

**§ 88.105–94 Clean-fuel fleet emission standards for heavy-duty engines.**

(a) Exhaust emissions from engines used in heavy-duty low emission vehicles shall meet one of the following standards:

(1) Combined emissions of oxides of nitrogen and nonmethane hydrocarbons (or nonmethane hydrocarbon equivalent) shall not exceed 3.8 grams per brake horsepower-hour.

(2) Combined emissions of oxides of nitrogen and nonmethane hydrocarbons (or nonmethane hydrocarbon equivalent) shall not exceed 3.5 grams per brake horsepower-hour when tested

(certified) on fuel meeting the specifications of California certification fuel.

(b) Exhaust emissions from engines used in heavy-duty low emission vehicles shall meet conventional vehicle standards set forth in Part 86 for total hydrocarbon, carbon monoxide, particulate, and organic material hydrocarbon equivalent.

(c) Exhaust emissions from engines used in ultra-low emission heavy-duty vehicles shall meet each of the following standards: